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A. M.

A Detail of Experiments
PROVING
THE IDENTITY
OF
COW POX & SMALL POX.

BY
JOHN BADCOCK,
CHEMIST,
BRIGHTON.

Price 2s. 6d.

11877A

A Detail of Experiments
CONFIRMING
THE POWER OF COW POX
TO
PROTECT THE CONSTITUTION
FROM
A SUBSEQUENT ATTACK
OF
SMALL POX,

By proving the identity of the two Diseases.

BY
JOHN BADCOCK,
CHEMIST,
BRIGHTON.

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1845.

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ERRATA.

By a typographical error, the word *variolous* has been misspelt *variolus*, at pages 13, 17, 21, and 26.

At page 15, *inoculation* has been misspelt *inoculation*.

At pages 24 and 27, *desiccate* misspelt *desicate*.

At page 3, for *Cows* read *Cow*.

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PROPER VACCINE VIRUS ;

How to produce it upon the Cows, and the probable advantages of fresh supplies, &c.

FROM whatever cause it may arise, the fact has been of late years already ascertained, that the ordinary vaccine virus has lost a great deal of its protective power against small pox. A greater number of cases in which that disease has occurred after vaccination are met with than formerly, and in some instances these are very severe, and occasionally even terminate fatally.

Several reasons have been assigned for the failure of the vaccine virus, the principal of which are, the probability of its becoming modified by age, or influenced by passing through so many constitutions, during the lengthened period of half a century, or even deteriorated by want of the necessary care in the selection of the lymph for vaccination ; this latter reason being supported by the fact that Dr. Jenner himself found that lymph taken from a genuine vesicle at too late a period, either failed entirely, or produced

a spurious vesicle. It is not at all improbable that all these causes may have operated in lessening the value of vaccination, as a means of protection against small pox.

Dr. Gregory, Physician to the Small pox Hospital in London, in a report which he made some time since, gives additional weight to one of these reasons, by the remark that vaccine lymph, passed through many persons, loses, in process of time, much of its activity. His statement has been confirmed by several eminent medical men on the continent; and I believe there are but few practitioners who would, at the present day, venture to gainsay the statement.

Be the cause what it may, the fact is now beyond a doubt, that the vaccine lymph, *that most precious boon of Jenner to a suffering world*, has become greatly impaired in value, and is even still advancing in the process of deterioration. Medical men repeatedly find in practice that vaccination with the old stock of lymph, requires to be repeated more than once, and occasionally as often as four times, ere a genuine vesicle is produced, and that even when they have used great care in the selection of the lymph they employ. In other

cases again, besides the direct evidence of the failure or loss of protecting power in the lymph, afforded by a subsequent attack of small pox, it has been ascertained that the existence of a proper cicatrix, usually relied upon as the test of perfect vaccination, offers no proof of its permanent protection.

The fact that re-vaccinations, practised as they have been on a very extended scale in the Prussian army and elsewhere with success, and the formation of a genuine vesicle, despite the existence of a proper cicatrix, as shewn, clearly demonstrate that, at all events in a large proportion of the population, the lapse of a certain number of years has been sufficient to exhaust the influence of the previous vaccination on the system, and to render it liable to the invasion of the disease, against which it was intended to guard.

To remedy, or rather prevent the increase and spread of this formidable disease, re-vaccination has been practised very extensively on the continent, and has been strongly recommended by many practitioners in this country, some of whom go so far as to state that the limit of protection afforded by the

operation is seven years, and that at the end of that time it should be repeated. Without admitting this doctrine in its fullest extent, there cannot be a doubt that, unless some means be adopted to secure a more effective virus, re-vaccination at stated periods must be generally had recourse to.

A proposal has been made to meet the wants of the population occasioned by the failure of the old stock, that recourse be again made to the original source; but the formation of the genuine vesicle in the cow is of such rare occurrence, the animal is subject to so many spurious pustules, and, being generally in the hands of ignorant persons, the true disease, where it does occur, is so likely to be overlooked, or mistaken, or else the proper time for taking the lymph allowed to pass by, that the hope of thus procuring it is almost illusory. If it could be readily procured, so as to form a large and efficient supply, there is but little doubt that it would soon supersede the use of the old stock.

M. Bosquet has published the particulars of some comparative experiments which he instituted with vaccine virus obtained from a cow at Passy, near Paris, in 1836, and some of

Dr. Jenner's which had then been in use about forty years. He shewed, by beautifully engraved illustrations, the daily appearance of both vesicles, and clearly proved the greater activity of the new lymph. Dr. Trompeo, also, at a meeting of the Scientific Congress at Lucca, in 1844, remarked on this subject, "that it is of great importance to resort frequently to the primary source of the virus by re-taking it from the cow, in order to obtain durable results."

An important document, published by the Minister of Commerce, on vaccination as performed in France in 1843, strongly confirms the views which have been just advanced. After furnishing us with calculations on the durability of the vaccine influence, it concludes by advising us how to obtain active virus. It appears that in that year, there were 547,646 vaccinated, and of those 11,773 were attacked with small pox. Of the latter, 1294 became disfigured or infirm, and 1379 died in consequence of the disease. The report contains, as well, the following information: first, that vaccination loses its efficacy with time, but the small pox seldom attacks the vaccinated before ten, sometimes

twenty or twenty-five years;—secondly, the cases of small pox are less severe in subjects who have been vaccinated than others;—thirdly, the only mode of renewing the vaccinating virus, is by application to the cow.

On the Continent it has been deemed expedient to try a fresh stock of vaccine, and I believe I am correct in stating that the Neapolitan Government has at this time agents seeking new supplies in Gloucestershire, where Dr. Jenner originally obtained it.

Why it is that in our own country similar propositions are unheeded, and fresh supplies of vaccine, however efficient, are refused, I am at a loss to conjecture.

The statements issued periodically by the Officers of the National Vaccine Institution, “of continued confidence in their vaccine,” &c., may certainly lead many to suppose no change is necessary; but that supplied from this establishment has not for years past given perfect satisfaction; and, if we refer to the Government returns of deaths from small pox during the last year, we shall be led to the conclusion that our system of vaccination is at present very defective. The returns published from the registrars of the several dis-

tricts for the year 1844, are not sufficiently clear for correct calculation from omissions in some of them, but those of the Metropolitan District will answer my purpose.

In London, or the Metropolitan Districts, one thousand eight hundred and four deaths from small pox were registered in that year. Of this frightful mortality, I have not been able to ascertain how many of the victims had been previously vaccinated, but without doubt, a considerable number of them, as I find of 151 fatal cases in the London Small Pox Hospital during the same year, twenty-four had been vaccinated; and of the 647 patients admitted with small pox, 312 had received the promised protection of vaccination, seven of them at that Hospital. The returns from some of the country districts were not more satisfactory, for I observe at Blackburn in the last quarter of that year, (viz., the thirteenth week ending in December,) the number of deaths from small pox amounted to 118, of which 36, or nearly one third, had been previously vaccinated. With these authenticated statements before our eyes, it is but natural we should lose confidence in the old vaccine; for if it has undergone no change with age,

how can we account for the singular fact, that when Dr. Jenner petitioned Parliament for a reward, some years after his discovery had been tested, the subject underwent a most rigid and searching investigation before a Committee of the House of Commons, and no satisfactory evidence could be brought forward by his strongest opponents of one death from small pox after proper vaccination. It would be a serious reflection on the profession, if the numerous failures of the present day were to be attributed to their carelessness, for vaccination is now almost entirely performed by medical men, when formerly the operation was practised so successfully by many who had but very little pretensions to medical knowledge.

The facts thus brought forward are sufficient to shew that the old stock of vaccine lymph has from some cause lost in a great measure its protecting power, and it becomes necessary to seek for some means to supply its place with a better virus. I have already observed that the disease shews itself naturally on the cow but rarely, and from various causes a considerable period of time might elapse ere a supply from that animal could be obtained.

It becomes therefore necessary to endeavour to produce the disease in her, and in that I have succeeded by inoculating her with the matter of small pox. I should say that my attention was directed to this experiment from circumstances which I am about to mention.

Towards the end of the year 1836, I suffered severely from a dangerous attack of small pox, which happened but a few months after re-vaccination, and my mind having previously been impressed with an idea that the *old vaccine* had lost its protective influence by passing through so many constitutions, during the long period of forty years, I was exceedingly anxious to procure some fresh from the cow, for the purpose of having my own children re-vaccinated. On enquiry, I found that the true disease seldom prevails among cattle; and I also learned, from very excellent authority, that disastrous consequences have arisen from inexperienced persons communicating other pustular diseases of the animal in mistake. The only satisfactory mode of obtaining, with certainty, the *true vaccine* that presented itself to my mind was, therefore, to inoculate a healthy cow with small pox matter, as the result of that operation, if any, must be cow

small pox. I must here mention that this method of obtaining vaccine is opposed to Dr. Jenner's theory ; for he informs us that the origin of vaccine was a disease on the heel of the horse, called the *grease*, which was communicated to the cow by the milkers. But perhaps it will be best to quote his own words : —“The *grease*,” says Dr. Jenner, in a work published in 1798, “is an inflammation and swelling in the heel, from which issues matter possessing properties of a very peculiar kind, which seems capable of generating a disease in the human body (after it had undergone the modification which I shall presently speak of), which bears so strong a resemblance to the small pox, that I think it highly probable it may be the source of that disease. In this dairy county (Gloucestershire, and the surrounding counties,) a great number of cows are kept, and the office of milking is performed indiscriminately by men and maid servants. One of the former having been appointed to apply dressings to the heels of a horse affected with the *grease*, and not paying sufficient attention to cleanliness, incautiously bears his part in milking the cows with some particles of the infectious matter adhering to his fingers.

When this is the case, it commonly happens that a disease is communicated to the cows, and from the cows to the dairy maids, which spreads through the farm until most of the cattle and domestics feel its unpleasant consequences. This disease has obtained the name of cow pox. With respect to the opinion adduced, that the source of the infection is a peculiar morbid matter arising from the horse, although I have not been able to prove it from actual experiments conducted immediately under my own eye, yet the evidence I have adduced appears sufficient to establish it."

But this doctrine of Jenner's does not appear to be well supported. It is known that the lower animals have a variolus disease, resembling our small pox, and it is more than probable that the cows were labouring under that disorder or human small pox. In searching for information on this subject, I found the following in an old work written by Dr. Fuller:—"Mr. Mather, in his letter from Boston, in New England, saith that Dr. Leigh, in his Natural History of Lancashire, reporteth that there were some cats known to catch the small pox, and pass regularly through the state of it; and at last he telleth us, we have

had among us the very same occurrence. For, in like manner, there was, about the year 1710 or 1711, upon the South Downs in Sussex, a certain fever raging epidemically among the sheep, which the shepherds called the small pox ; and truly in most things it nearly resembled it. It began with a burning heat, and unquenchable thirst ; it broke out in fiery pustules all the body over. These matured, and, if death happened not first, dried up into scabs about the 12th day. It could not be cured, no nor in the least mitigated, by phlebotomy, drinks, or any medicines or methods they could invent or hear of. It was exceedingly contagious and mortal, for, where it came, it swept away almost whole flocks ; but yet it could be in no wise accounted the same as our human small pox, because it never infected mankind."

Having, as I have already stated, lost some of my confidence in the old vaccine, and being desirous of avoiding the risk of taking the casual disease from the animal, I solicited some of my medical friends to inoculate a cow of mine with small pox, but their want of leisure from professional duties disappointed me in that respect, and, after waiting nearly

three years, I undertook the experiment myself.

In the month of December, 1840, I commenced operations on a fine young cow, with small pox matter taken from a strong healthy girl, and was singularly successful. My own little boy was the first vaccinated from the cow, and from this and subsequent operations I have carefully kept up the supply of vaccine. In these proceedings the utmost caution was observed for the public safety, as well as to make the experiment interesting to the profession. Three days after inoculation with small pox, the cow was inspected by medical men, the vesicle was watched in its progress, and the lymph taken in their presence. I also placed all my early cases of vaccination under the inspection of medical practitioners, and a great number of them visited my little boy during the progress of the disease. After my success in this experiment, the next was to inoculate a pony with small pox, but without any result. I was equally unsuccessful with three cows which I inoculated with grease (the reputed source of Dr. Jenner's vaccine), for in all I failed to produce anything like a vaccine vesicle. It was not until some time

after the commencement of my investigations, nor, in fact, before I had succeeded in my object, that I became acquainted with the experiments of Mr. Ceely, of Aylesbury, made a few months previous, and so beautifully illustrated in the eighth vol. of the Transactions of the Provincial, Medical, and Surgical Association.

Dr. Jenner's writings clearly evince his belief in the identity of cow pox and small pox, that in fact they have one common origin; for he not only contends that the cow pox was derived from the grease of the horse, conveyed to the cows by the milkers, but he also thought it highly probable that that disease was the source of small pox in the human subject.

The following extract from a lecture by Mr. Erasmus Wilson confirms the opinion that cow pox and small pox are identical:—"We may," says this clever surgeon, "regard *vaccine* in another and its true light, namely, as identical with *variola*, and consequently the operation as the same with inoculation with small pox; the only difference being the greater mildness of *vaccine*, resulting from its transmission through the cow. In this sense it is clear that variolation, after vaccination, is re-vaccination in all excepting in name."

In a work published by Mr. Pruen in 1807, entitled "A Comparative Sketch of the effects of the Variolus and Vaccine Inoculation," the opinion of a Mr. Birch is quoted that "cow pox was nothing but small pox transmitted through the cow." All these authorities, therefore, favour my view of the question, and tend *a priori* to shew that the lymph obtained from vesicles produced on the cow by inoculation with small pox matter, would cause on the human subject the usual effects of a perfect vaccination. This fact, as I have before stated, I have repeatedly demonstrated by direct experiment.

I have already remarked that my own little boy was the first human being whom I vaccinated with the lymph which I obtained from the cow. The operation was perfectly successful, and one of the medical gentlemen who had witnessed the development of the vesicle upon the cow, became desirous to vaccinate his child from mine.

Although I had the greatest confidence in the lymph thus produced, and infinitely preferred it to the old stock of doubtful origin, which appeared to be worn out; yet, as it was the first experiment of the kind I had ever

heard of, I naturally watched its transmission with some anxiety.* My little boy's novel case excited considerable interest, for more than thirty medical gentlemen of Brighton and the neighbourhood, including six physicians, visited him during the first ten days.

Notwithstanding the unanimous opinions of all regarding my child's case, I thought it advisable to subject most of the patients of the first and second removes from the cow to the same scrutiny ; the results were equally gratifying. Good vesicles were produced, and the children did not appear to suffer more constitutional disturbance than is usual from the ordinary vaccine. By the kind co-operation of the profession in furnishing me with frequent supplies of small pox lymph, I have been able, during the last four years, to repeat this experiment upon upwards of ninety cows ; and from occasional successful cases, am obtaining fresh supplies of vaccine. The experience I have now had in several thousand cases of vaccination with this virus, and in numerous instances when exposed to small pox contagion (some of which, as they are remarkable cases,

* Mr. Ceely's similar experiment was at this time unknown to me.

I shall refer to), would justify me in recommending it for general use. But as I have not the presumption to think the public mind would be satisfied upon such an important matter by my individual statements, I shall proceed to give such confirmation of them as appears necessary. Among those of the profession in this neighbourhood who have favoured me with their opinions, I must first mention the name of Sir Matthew Tierney, as many are aware he has taken great interest in vaccination ever since its first introduction.

Much of Sir Matthew Tierney's valuable time was devoted to the examination of patients in all stages of the disease at his own house; and in proof of his confidence in my vaccine, he not only recommended it to his own patients, but as Vice-President of the Brighton Dispensary, proposed its use to that Institution, as will be seen by a letter from the House-Surgeon, in an Appendix to these remarks. Others of the profession are no less entitled to my sincere thanks, as, by their valuable testimony, I have been able more satisfactorily to establish a fact in medical science which has hitherto been much dis-

puted, namely, the identity of small pox and cow pox.

Mankind are indebted to the illustrious Jenner for a knowledge of the fact, that the human constitution is protected from an attack of small pox, by being impregnated with a vesicle of a given character, arising upon the udder of the cow, called cow pox. The similarity in the protective powers of small pox and cow pox led to the conjecture, that the two diseases are the same.

This identity, however, has hitherto been a mere matter of surmise ; their points of difference being such as sufficiently to indicate their dissimilarity, and to stagger our belief in their essential unity. Thus, small pox is infectious, but cow pox is not so ; small pox diffuses itself over the whole surface of the body, but cow pox does not do so. Cow pox is characterised by a double areola surrounding the vesicle, which is not the case in small pox. Small pox is attended with violent fever and severe pain in the head and back ; cow pox is attended with a fever of a much milder character. The cow pox vesicle is depressed in the centre of a pearly appearance, and con-

tains a transparent crystal fluid ; the small pox pustule, on the other hand, soon suppurates, and becomes conical in its figure. The crust of the cow pox is of a dark brown colour, like a tamarind stone ; but the crust of the small pox is of a lighter colour, like the honey-comb. It has been noticed, that when the variolus and vaccine fluids are mixed together, and thus inserted, sometimes the vaccine pustule, at others, the variolus, has been produced, each of them retaining its characteristic marks throughout.

Again, it has been found that when the two fluids are inserted separately and so near together that the two pustules which follow spread into one, by inoculating with the fluid taken from one side of it, the vaccine pustule alone will be produced, while the fluid taken from the other excites the genuine variolus pustule with the general eruption of the small pox on the body. Thus, while the similarity of the two diseases was indicated by their equally exerting a protective power over the constitution, their dissimilarity was sufficiently evident to require some further proof of their being the same. In proof of the protective power of vaccination over the con-

stitution, we might refer to the instances of immunity which have occurred, and to the fact, that you cannot induce inoculated small pox in a vaccinated individual ; but its mode of action is not explained, and, upon a partial failure of the process, individuals might be induced more readily to relinquish their confidence in the protection of vaccination, from its not being accounted for on rational principles.

Up to the period of the experiments performed by Mr. Ceely and myself, I believe, there is no authentic record of an individual, in this country, having succeeded in innoculating the cow with small pox matter ; but I have already shown she may be so inoculated, and that a vesicle thus produced yields a fluid which, being transmitted to the human subject, produces all the appearances which Dr. Jenner has described as the true vaccine vesicle ; thereby demonstrating the identity of the two diseases, and that, notwithstanding the several points of dissimilarity, they are, indeed, the same,—that cow pox is small pox which has passed through the constitution of the cow, having lost its *infectious qualities*, but retained its *protective power*. This demonstration of the

identity of the two diseases establishes the protective power of vaccination upon a substantial basis, proving, that as one attack of small pox will prevent a subsequent attack, so will vaccination, for they are the same disease ; and this identical nature of the two will afford a rational explanation of the protective virtues of the cow pox.

I shall now briefly notice some of the cases which have been under my care, and in the Appendix shall give a selection from numerous letters received from members of the medical profession, approving the lymph which I have thus ventured to bring under the notice of the profession and the public.

The first opportunity I had of testing the protective power of this vaccine was on the 11th of March, 1841. Four children, by the name of Callam, of the respective ages of two, six, nine, and eleven years, residing at 32, Kensington Gardens, Brighton, were brought to me to be vaccinated, in consequence of another child of the family, living in the same room, having the small pox. This was the fourth day of the eruption. One of my patients entirely escaped the infection ; the vaccine vesicle progressed properly with the other

three, but on the tenth day a slight eruption came out, without much fever, and began to desiccate on the third day satisfactorily, thus showing the effect of the new vaccine in modifying the disease.

The next case was that of Charles Carter, seventeen months old, No. 6, Gloucester Terrace, vaccinated by me on the 18th of February. This child's brother, a few months after, died from small pox. The two children were constantly together, and slept in the same bed. My patient escaped the disease.

Mary Johnson, two and a-half years old, residing at 30, Gardiner Street, was vaccinated by me on the 21st of January, 1841. The child was exposed to the contagion of small pox, without being the least affected by it. It is worthy of remark—her sister, five years of age, who died from the small pox, had been vaccinated with the old stock of vaccine a few months previously.

Maria Busby, ten years of age, residing at No. 4, Cumberland Place, not having been vaccinated, applied to me for that purpose on the 20th of September, 1841, in consequence of two of her sisters being dangerously ill with small pox. She continued in the same house

with them, and was entirely protected by vaccination.

John Dendy, aged twenty months, No. 1, Little Norfolk Street, was brought to me to be vaccinated, at the request of Mr. Dill, surgeon, on the 11th of January, 1844, another child of the family having a severe attack of small pox. This patient, as in the other instances, I observed sleeping in the same bed with the infected child, and yet did not show the least symptoms of the disease.

Four children, named Tugwell,—Phillis, seven, Peter, four, Sarah, two years, and David, six weeks old,—residing at No. 4, Thomas Street, were vaccinated on the 18th of July, with the new virus.

I understood at the time, that their father was confined to his bed with small pox.

On the 26th (eight days after vaccination) the children were brought to me for examination. The father had died that morning. I found the first three going on very satisfactorily, but in the infant's case, the vaccine had produced no visible effect. I then re-vaccinated him, from his brother's arm.

Three days afterwards, I saw the children again. All, excepting the infant, were doing

well. One small pustule was observable on Sarah's ankle, which had something of the appearance of a variolus pustule, but the child having no constitutional symptoms to confirm it. On the contrary, being in perfect health, I was not disposed to consider it as such. Circumstances compelling me to leave home, a week elapsed before I had an opportunity of seeing these children again, when my suspicion regarding the infant was confirmed. He had died from small pox. The others remained in perfect health.

The mother then informed me that another daughter, (Rhoda) nine years of age, vaccinated, in infancy, with the old vaccine, took the small pox, but had it mildly.

Brighton Dispensary, 1844.

The cases of the above four children, named Tugwell, were under my observation, and I can answer for the accuracy of their relation.

(Signed)

S. R. SCOTT,

House Surgeon.

Victoria Trott, aged twelve months, (32, Upper Gardiner Street) was vaccinated by me

on the 1st of August, with virus obtained from the cow in 1841.

The child's father informed me, her twin sister was ill with small pox. I examined the child on the 4th, and eight days after vaccination she was rather feverish ; but not more so than is usual. The vesicles were very perfect. On the tenth day the mother counted eight or nine pimples on different parts of the body, which remained for three or four days, then desicated ; but, to use her own expression, "the child was neither sick nor sorry." The sister died of small pox, three days after Victoria was vaccinated. It is singular this child should have escaped the contagion, for the mother, having lost one nipple, suckled both her infants from the same breast up to the hour of her sister's death.

Brighton Dispensary, Nov., 1844.

The above case of Victoria Trott, and also that of her twin sister, who died of small-pox, came under my observation. The facts of those cases were exactly as related by Mr. Badcock.

(Signed)

S. R. SCOTT,

House Surgeon.



Thos. Oliver, four years, and Henry Oliver, eight months old, (24, Upper Gardiner Street) were vaccinated by me with the new virus. As in this instance another of the family had just been taken ill with small pox, I had an additional proof of the efficiency of my vaccine. The sick child died about a week after these children were vaccinated. They were constantly in the same room exposed to the infection, and one slept in the same bed with the small pox patient until the day of its death; but both escaped the disease.

Brighton Dispensary, Nov., 1844.

The above cases of Henry and Thomas Oliver were under my observation. I have much pleasure in attesting their accuracy.

(Signed) *S. R. SCOTT.*

House Surgeon.

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Mary Ann Mitchell, at three years of age, was vaccinated by me on the 13th day of January, 1842, with vaccine of a former supply from the cow.

In September last, three of her sisters—Henrietta, twelve, Susannah, ten, and Emily,

eight years of age, were taken ill with small pox. Each had been vaccinated, in infancy, with vaccine from the old stock ; but Mary Ann alone escaped the infection.

*Brighton Dispensary, Nov., 1844.*

*It gives me much pleasure to be able to confirm Mr. Badcock's relation of the above cases of Mary Ann, Henrietta, Susannah, and Emily Mitchell.*

*(Signed)*

*S. R. SCOTT,*

*House Surgeon.*

~~~~~  
 ——— Rusbridge, two years of age, No. 16, Francis Street, was vaccinated on the 13th of February, 1845.

The child's father, at this time, was dangerously ill with small pox ; and about a week subsequently a younger child died of the disorder.

As the parents had no means of separating the children, my patient was constantly exposed to the infection ; and when I visited the family, I observed her myself rocking the cradle of the dying infant in perfect security.

Dr. Kebbell attended the small pox patients.

Ruth Clout, four years of age, Mercy Clout,

two years, and Sophia Clout, seven months, were vaccinated by me on the 7th of April, 1845, in consequence of a lodger's child having small pox. Vaccination was equally successful in all these cases, for neither of the children were in the least affected by small pox.

William Henry Gould, 33, Essex Street, aged ten months, was vaccinated the 30th of May, 1845. Four days subsequently to this his mother, who had been unwell several days was found to have small pox. The child, up to this time, was nursed by the mother; but her situation rendered it necessary to take him from the breast. The vaccine went through its course satisfactorily, and the child was not the least affected by the mother's disease.

APPENDIX.

CORRESPONDENCE

FROM

MEMBERS OF THE MEDICAL PROFESSION,

RELATIVE TO

RECENT SUPPLIES

OF

VARIOLÆ VACCINÆ,

OR

Modified Small Pox.

I N D E X.

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keep up your stock of virus by successive vaccinations. I shall be glad to hear your further observations on the experiment, and am,

Dear Sir, yours truly,

JAS. CLARK.

9, *Old Steine*,

January 7th, 1841.

Sir,—Having seen two children vaccinated by you with lymph recently obtained from the cow; having marked the results, and heard from you the particulars of the experiment, I have no hesitation in saying that I consider the experiment to be perfectly successful, and that as it is always desirable to fall back upon recent lymph, when it can be procured, I consider the obtaining of a large quantity of lymph, similar to that which you have just obtained, an object much to be desired both by the profession and the public; and shall therefore be happy to assist in any manner in my power towards the accomplishment of it.

I am, Sir, yours, truly,

P. M. LYONS.

London, January 8, 1841.

Dear Sir,—I enclose you a letter which I have just received from Mr. Estlin, of Bristol, who, as you no doubt know, has taken great interest in vaccination, and introduced a recent lymph. You no doubt also know Mr. Ceely's experiments.

When the weather is milder I think you might send Mr. Estlin some of your stock of virus, in order that he might compare it with his own. You should pay great attention to the progress and appearance of the vesicle, and keep accurate notes on the subject. Do not trust to memory.

It is most desirable that the old and new virus should be closely watched in their *effects* locally, and their *influence* as a protection. The first may be soon observed, the latter will take time. You will very likely hear from Mr. Dodd, of Chichester, to whom I desired Mr. Estlin to send your letter. Be careful to keep up your stock.

Yours, truly,

JAS. CLARK.

Brighton, 10, Devonshire Place,

January 9th, 1841.

Sir,—I was not until very lately aware that the profession were ignorant of the fact of vaccine virus being the small pox merely passed through the blood of the cow. It is now more than forty years since, I believe, I inoculated the first child in the county of Kent, with the vaccine lymph, and about that time I well remember old Dr. Dobell saying, that he believed it to be identical with small pox. He was a celebrated man for inoculation, and received patients into his house. He found his cows frequently attacked from the female patients occasionally milking the cows. I have no doubt the only safe virus is to be obtained in this way, and that when so obtained, and carefully used, is a certain preventative of the small pox. I believe the causes of failure so often heard of, arise from using spurious or worn out matter, or perhaps, what is worse, matter that has not only become useless, but in some way amalgamated (if I may so use the expression) with other animal poison, and thus producing those horrid cases of cutaneous eruptions so often seen.

Your plan of providing lymph deserves the thanks and support of the whole profession. I for one shall be very ready to subscribe my mite in support of it.

I remain, Sir, yours, very truly,
W. R. MOTT.

Old Steine, Brighton,
January 17th, 1841.

Sir,—I have pleasure in complying with your request, that I should certify to the facts which have resulted from the interesting experiment you have recently made by the inoculation of a cow with variolous matter, and I have to thank you for affording me the opportunity of observing the same. On the 21st of December last I saw, in company with Mr. Burrows and yourself, the cow in question, and noticed *one* well developed vesicle, situated near the external labium, presenting the ordinary characteristics of a vaccine vesicle as it appears on the arm of a child on the eighth or ninth day of maturation, failing only in the circumjacent areola of inflammation.

I understood from you that this was the

eighth day from inoculation, with matter taken from a small pox patient, attended by Mr. Burrows ; that you had inserted the virus in two places, on the teats, and also on the spot which presented the only external result. The cow did not appear to suffer any constitutional disturbance.

On the 1st of January I saw your little boy, and also the child of another person, both of whom, I understood, had been vaccinated by you with lymph taken from the vesicle I noticed on the cow.

In your own child's case (this being the seventh day) the vesicle presented the usual progressive appearance, though in miniature. The other child's arm, which had been vaccinated two days later, did not look as though the virus had taken effect.

On the 5th of January I again saw the children, *i. e.* on the eleventh and ninth days respectively, when the appearance in both cases were, to my mind, thoroughly satisfactory; the vesicle on your own child's arm having obtained a full size, and with the circumscribed blush of redness, &c., offering ample evidence of perfect maturation. The

progress in the second case was equally satisfactory. On the 14th inst. I again saw your child's arm, when the small dry tamarind-stone-like crust was still adhering.

The annexed quotation from the Annual Report of the N. V. I.,* dated January, 1840, though in the main highly satisfactory, certainly does not hold out any inducement to such experiments as that which you have taken the trouble to make. But without disparagement to any thing emanating from the meritorious efforts of Dr. Jenner, whose memory as a benefactor to the whole human race is deservedly revered, the opinions therein expressed of the superior efficacy of that virus

* "The experience of another year has confirmed our conviction of the efficacy of vaccination as the best security against small pox, and has afforded us, moreover, proofs of the propriety, in the present state of our knowledge, of preferring vaccine matter, the produce of the original virus furnished by Dr. Jenner, which has now passed happily through successive generations of subjects in the course of forty-three years, and which forms the principal source of our supply, to any which may have been taken recently from the cow."

which has for 43 years been transmitted through the constitutions of successive generations (allowing for argument sake that it were uninfluenced, uncontaminated, and pure as when taken from its parent source), have I believe many opponents among those who have unhappily noticed the occasional failures of its protective influence. And when in their endeavour to account for such casualties, with good reason they revert to the liability to modification in the qualities of the vaccine virus, so extensively transmitted over the habitable globe, as to preclude the possibility of insuring it from commixture with lymph, or matter, in circulation from unauthenticated sources, and consequently the inert, the spurious, and genuine, can often only be appreciated by their results. And that even when in cases of apparently successful vaccination under the interested and watchful superintendence of medical men operating on their own offspring, it does not invariably afford permanent security. The renewal of the stock of lymph originated as in the present instance, and carefully watched in its early transmissions more especially, so that it is productive of such

appearances in the progress of the vesicle, as by the combined experience of all competent judges, is deemed evidence of the constitution being placed under the protective influence of vaccine matter, will, I believe, have very many impartial, disinterested, and zealous advocates; and I sincerely hope your second experiment upon another cow may afford you results which will enable you to promulgate, at all events locally, the genuineness and efficacy of this recently originated stock of lymph, as also to maintain an interesting physiological fact. With best wishes for your success,

I am, Sir,

Your obedient servant,

THOMAS WILLIS.



Brighton, 1, St. James's Street,

January 20th, 1841.

My dear Sir,—I have watched through the late stages of your own child's arm, and have used the virus on one of my own patients, which has turned out so highly satisfactory

that I have no hesitation in saying I should prefer this stock to any I have previously used.

Yours, truly,

S. PAINE.

No. 1, *Castle Square, Brighton,*

January 25th, 1841.

Dear Sir,—I have tried your vaccine virus in five cases, and am happy to tell you with the best success; the development of the pustules appears a day or two later than that of the old virus. I am so pleased with the experiment, and its effects, that I shall continue to vaccinate from your supply in preference to any other; and am,

Dear Sir, yours truly,

J. C. BURROWS.

Brighton, 20, Prince's Street,

February 12th, 1841.

Dear Sir,—Having vaccinated my little girl with lymph from your child's arm, and being present when your little patient was vaccinated from the cow, and having had also the opportunity of observing the disease

through all its stages upon both children, I can but express my perfect confidence and preference to your vaccine.

I am, dear Sir, yours very truly,
R. P. PELLOWE.

7, *Pavilion Parade, Brighton,*
February 13th, 1841.

Sir,—I have myself vaccinated with the lymph which you recently procured from the cow, and I have seen and examined the pock arising from the use of the same by yourself and by others, and I am of opinion that the success of your experiment is full and complete. Had any of my *own* children required vaccination I should have had no objection to the use of your lymph, indeed I would have preferred it.

I am, Sir, yours, very truly,
A. PLUMMER, M.D.

Horsham, March 8th, 1841.

Dear Sir,—I beg to add to my best thanks for your polite attention to my request as to

the vaccine matter, a short account of the result of the first case. The vesicle produced was, to my eye, more exactly regular in shape than we have been accustomed to see of late, corresponding entirely to all that has been formerly defined as the genuine cow pock. The areola, perfect on the ninth and tenth days, showed the *pearl on the rose*, and no mixture of more common inflammation obscured its specific character. So far as *one* case can do, the progress of this completely negatives the idea entertained I hear in some quarters as to the greater severity of constitutional disease produced by the variolo-vaccine process. I should be inclined to say that the specific influence seems more distinctly marked, the general febrile disturbance being proportionably less, for I cannot think the protective power is governed by the latter in any degree, but that it is regulated by the former entirely. How far your present endeavour will confirm this view, a *series* of cases, (which you may ere this have before you) must, of course, determine. I feel little doubt but that they will afford their confirmation, at the same time proving (if proof of so plain a thing could now

be required) the identity of variola and vaccinia in the most striking manner.

I am, dear Sir,

With best thanks for your favors,

Yours, respectfully,

W. T. COLEMAN.

Waterford, March 25th, 1841.

Dear Sir,—I fear you will consider my long delay in acknowledging the receipt of the vaccine virus as a poor return for your great kindness in sending it. My apology must be, that a combination of much professional and personal anxiety prevented due attention to the first cases in which I used the lymph. From later cases it appears to me to be quite normal in its stages and progress, though less active as to the amount of inflammation it excites, and with vesicles smaller than I have witnessed before. It develops its first inflammation on the third day at latest, on the fourth or fifth day it is perceptibly vesicated; the areola appears generally on the eighth day, and is on the decline on the twelfth day; the scabs are detached from the twentieth to the twenty-seventh day. The transference of the

infection from the arm first vaccinated to the opposite on the fourth or fifth day has in some instances failed, but in all these cases some allowance is to be made for the state of health. Some of these children I operated on were suffering more or less from the irritation of teething. Should any thing further strike me as worthy of remark I will communicate it.

I remain, dear Sir,

Yours, very faithfully and obliged,

JOHN ELLIOTT, M.D.

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*Bristol, March 29th, 1841.*

Sir,—Having been informed by Sir James Clark (whose desire to promote useful professional objects is well known) respecting the supply of vaccine lymph you had procured by variolating a cow, I had no hesitation in making trial of it; and having now employed it through *seven* successive courses of inoculation, I am able to say, that I feel quite satisfied with it. It differs a little from that in ordinary use, in producing, during the first week especially, vesicles not quite so circular, and which, though yielding perfectly pellucid

lymph, when punctured, have a more purulent aspect than the old vesicle.

The areola, too, though appearing at the regular *time*, I have found to be less defined than that following the use of the other lymph.

These slight differences, however, I consider as no objection to it.

I believe that an attentive observer who has watched different kinds of lymph (the origin of which he is acquainted with), will detect slight variations in them. Jenner described his lymph, but minute differences may be found in lymph from other sources, equally protective from small pox. I think Dr. Gregory has lately stated that at the Small Pox Hospital virus from three different sources is in use there, each being distinguishable from the other by a practised eye. The crust remaining from your lymph, during the third and fourth week, appears to me particularly satisfactory, and quite characteristic of genuine cow pox. Your lymph, I think, much resembles that which Mr. Ceely procured from a cow inoculated with small pox, of which a most interesting account is given in the 8th volume of the Transactions of the Provincial Medical



and Surgical Association, accompanied by a beautiful series of coloured engravings.

I should prefer the lymph you have introduced to any procured from the National Vaccine Establishment. That the virus furnished by that Institution was in no greater favor with others than with myself, I can testify from the numerous applications made to me, from every part of the kingdom, for a supply of the stock which I had procured from some cows near Berkeley, in 1838, and which is the principal source of the cow pox now used in this city. How the National Vaccine Establishment can ascertain, as stated in their recent report, that the matter they circulate "is obtained by successions from the original virus communicated by Dr. Jenner himself," I know not. In a number of the *Lancet* (I think for July, 1839) Mr. Leese, one of the vaccinating surgeons at a station connected with the establishment, says, that the source of his virus was from some cows diseased in 1836, and that he had furnished the parent establishment with 27,183 charges; and from a letter in the *Medical Gazette* for July 6th, 1839, page 529, from Mr. Adams, of Lyming-

ton, there is every reason for believing that the National Establishment were distributing, without acknowledgment, the supply which I had furnished them with from the Berkeley cows. I have read the pamphlet by Mr. B——, of Brighton. A cautious practitioner cannot be blamed for not at once warmly espousing every novelty that is started, but I am sorry to see any discouragement thrown upon judicious attempts to establish valuable medical facts, and promote professional objects of a useful character. The importance of proving the possibility of speedily converting the direful poison of small pox into a benign lymph, capable of protecting the human constitution from all the danger and malignancy of that dreadful disorder, cannot be too highly appreciated, especially when we view it in reference to distant parts of the globe, where on the breaking out of small pox the old stock of vaccine matter is not to be procured. Mr. Ceely has, to my mind, satisfactorily demonstrated this fact, and I think the public are indebted to you for instituting a similar set of experiments. To render your results as conclusive as Mr. Ceely's,

it would be well for you to inoculate with small pox one or two of the children that have been vaccinated with your lymph. A friend in Somersetshire whom I furnished with some of your virus, writes to me a most favourable account of it. He says he never saw finer vesicles than those produced by it; that he regrets not having had it at the commencement of his public vaccinations; that he was supplying neighbouring practitioners with it, and that he trusted he should be able to keep it up.

He sends me some points charged on the 26th, five removes from that which I provided him with.

I am, Sir, your obedient servant,

J. B. ESTLIN.

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*Brighton, April 2nd, 1841.*

Dear Sir,—A fortnight to-day I had an opportunity of seeing a child at your house vaccinated with some lymph which you had originally procured by inoculating a cow with small pox matter; it was the tenth day after the insertion of the virus. I never saw vacci-

nation more perfect. The areola was quite distinct, the vesicle limpid, and exhibiting those characteristics which Dr. Jenner was wont to describe as "the pearl upon the rose." I have since used your lymph upon a patient of my own, the result was the most perfect and satisfactory of any I ever obtained.

To describe the appearances produced would be merely to describe the true Jennerian vesicle with which we are all familiar. You have preserved an exact account of the genealogy of your lymph. Mr. Burrows told me he gave you the variolous matter ; Dr. Willis saw the vesicle produced upon the cow ; your own child was the first which you vaccinated, and since that period you have kept an exact account of the pedigree up to the present time. Indeed I think that yours is the most successful experiment upon this subject ever performed in this country, and that it strikingly illustrates the accuracy of Jenner's views of the *variola vaccina*, and happily confirms his opinion of its protective influence, you having obtained the same result as he did by a different series of experiments, after a lapse of 40 years. Jenner had to grope his way through



great darkness, but in spite of the obscurity, by dint of much labour, he was enabled to detect the object of his research ; he plucked " the rose," he held it up to the light of day, and transmitted it an inestimable boon to posterity. He propagated it by transplantation, you have produced it by ingrafting, and by the similarity of the results we are enabled to welcome a benign influence, the gift of a beneficent Providence to man. Jenner showed us how to recognise it, you and Mr. Ceely, by your experiments, have shown us how to produce it ; but we had never known how to produce it unless Jenner had first shown us how to recognise it, thus converting the means of our destruction into the instrument of our preservation, a result which may be hailed as the loftiest and most beneficent triumph of the human intellect.

By these and the like experiments it has well been said, that the protective power of vaccination has been placed upon an imperishable basis. Henceforth all prejudice must be overcome, all doubt of the efficacy of vaccination must cease, all fear of its loss must subside, for the same experiments which have

confirmed its virtues, have said *esto perpetua*; and from Britain to the remotest corner of the habitable globe it will be proclaimed that wherever the pestilence of small pox spreads, there does it carry with it its own antidote, and also, that this truth has been elicited by British sagacity, and has been promulgated by British philanthropy.

But not only do these experiments seem thus important in their bearings, and thus happy in their results, with regard to one disease, but their influence with respect to Pathology in general, appears to me of surpassing interest.

Thus in the instance of the small pox, no chymist has been able to separate the elements of the disease, no anatomist has been able to dissect it, and to demonstrate wherein consists its different properties; a chymical analysis of the lymph yields only water and albumen, but the occult nature of the morbid matter, has completely eluded our researches. But by the experiments which you and Mr. Ceely have instituted, although this morbid matter, (if indeed it be matter) is not appreciable by the senses, you have been enabled

to take it, and as if by a subtile process of alchymy, to submit it as it were to sublimation, to decompose it, to reject its noxious qualities, and to retain its prophylactic virtues.

Who shall say that when the laws which govern these changes, are better known, and the process better understood, but that medical philosophers shall be able to analyze disease at pleasure, and to reject its hurtful, and retain its salutary qualities as they will? and who shall say, but that the infant whose life has been even now preserved by means of the vaccine virus, shall one day become a medical philosopher, who shall be able to demonstrate, to the wonder and admiration of his cotemporaries, that herein consists the contagious property of the disease, therein consists its preventive virtue?

And is not this in accordance with the enterprising spirit of the age, and the progress of modern discovery?

Has not man been able to seize the terrible power of lightning, to make it subserve his purposes, and become his messenger to convey intelligence, with almost the rapidity of thought, to distant parts? Has he not been

able to make the light permanently to fix the image of the human features upon a plate of metal? And if the medical philosopher should allow those features to become scarred by a loathsome disease, would not the fidelity of that process reprove him by demonstrating the deformity as depicted by the sunbeam? Onward then in the path of improvement till an antidote is found for every evil; and until every production is made to answer the end for which it was designed, in ministering to the necessities or in assuaging the sufferings of mankind.

Many of my medical friends have asked me, wherein is the new virus superior to the old, for if any proof were wanting of the efficacy of vaccination, it would be found in the tenacity with which medical men adhere to the old. For my own part, convinced as I am of the protective powers of the new virus, I unhesitatingly assert my preference for it before all others; not that the virtues of one moss rose are superior to the virtues of another moss rose, they are both the same, and far be it from me to wish to sully the beauty, or to assail the fair reputation of the old one;



still I think I may be allowed by contrast to shew the reasons of my preference for *that* one recently plucked from its native soil. There was, I think, a little ambiguity in the origin of the former, but the origin of the latter is undoubted; the genealogy of the former has been lost in antiquity, the genealogy of the latter has been well preserved. Notwithstanding the former has been in use for the last forty years, I do not think that it has lost its colour, or that its petals have faded; still, to my eye, the hues of the latter are more vivid and bright.

In the history of the latter, too, are involved the pleasing facts, of the confirmation of its efficacy, and the perpetuity of its source. In conclusion, I beg to express my warmest wishes that you may succeed in your undertaking, and that you may derive a more solid satisfaction, than the unavailing, though hearty praise of, Sir,

Your obedient servant,

D. RICHARDSON.

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*Aylesbury, April 3rd, 1845.*

My dear Sir,—I owe you many apologies

lymph, for the expedition to New Holland. I have promised a small supply, as much as the two or three weeks will allow me conveniently to collect. Could you add to the stock by charging three or four times about twelve large store points with your lymph? Jointly, then, you and I might supply them with enough for dependance, till it could be reproduced. I have reproduced several times from my early removes, *dried on points*, as efficient lymph as it was at first, from one to nine months; from crusts, ten months. I have no doubt the lymph will keep longer still. I always use these points on a scarified surface; there is no mode equal in certainty to that, and I have tried many. I will furnish you with large points for the purpose mentioned, if you can aid me; and am,

Dear Sir,

Yours, very truly,

ROBT. CEELY.

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*Watlington, April 7, 1841.*

Dear Sir,—I ought to have written to you sooner to thank you for the vaccine lymph

which you sent me, and to acquaint you with the results. I sent three of the six points to my brother at Kingston, near Abingdon, and with the remainder vaccinated a healthy boy in four places, using one point twice ; all the punctures took effect, and the progress and appearance of the vesicles were quite perfect. With the lymph taken from this subject, I have vaccinated five more ; in four of these it succeeded, but the fifth having been previously vaccinated was not affected by it. I should have continued using the lymph, but a person has been appointed to vaccinate this district, and I have, I fear, kept the points charged from the last subject too long, owing to the failure. I will however try them when an opportunity occurs. The vesicles appeared to proceed more slowly for the first six days, than usual, but arrived at maturity at the proper time, and were of a very perfect form. I have long been of opinion that the cow pock matter had become contaminated by passing through so many subjects during half a century, and that we ought to obtain it as often as possible from its original source. Some facts which I have ascertained make it

very probable that eruptive diseases, which have entirely *left the skin* at the time of vaccination, may yet be communicated by using lymph taken from this subject. Some time ago, wishing to vaccinate the child of a respectable person, I carefully selected and examined an apparently fine, healthy boy; no spot of eruption could be detected, yet the child vaccinated from this had a scaly eruption all over the body and *tinea capitis*, which has not quite yet disappeared (four years). I then ascertained from some neighbours of the boy that he had had a severe attack of *porrigo larvalis* a twelvemonth before, but which had entirely disappeared some months before I vaccinated him.

I am, dear Sir,

Very truly yours,

HENRY BARRET.

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Haughley, Stowmarket,

June 7th, 1841.

Dear Sir,— I beg to thank you for your kindness in having sent me some of your variola vaccine, which I have found to succeed very well.

Mr. Estlin sent me some of his vaccine the day after I received a supply from you. I have continued to use both kinds, and have been very careful to keep them separate. I cannot see that there is any difference in the appearance of vesicles produced by either kind.

I have certainly found the lymph received both from you and Mr. Estlin almost invariably to succeed ; and I had some difficulty in procuring a supply of lymph to go on with when I used the vaccine from the National Institution, several cases being unsuccessful, which I afterwards vaccinated successfully with your lymph.

I remain, dear Sir,

Yours, very obliged,

WILLIAM EBDEN.

Brighton, July 28th, 1841.

Dear Sir,—I have kept no account of the numbers vaccinated by me, since you supplied me with virus from your stock, but should suppose them to amount to about one hundred.

I have never failed in one case in producing the pure vaccine pustule, and I am so much satisfied with it, that I have discontinued the use of the virus which I had previously employed. You ask me if I have seen it brought in contact with small pox. I have so; and in a manner which fully proves its protective power. The case was this:—A lady, who had been confined a month, failed with small pox, and as measles were also in the house, the character of the disease was not ascertained until the second day, during which time the child remained with the mother and was nursed by her; as soon however as the disease was recognised, the infant was vaccinated, the pustules were good, and it has not had the small pox; and it is now five weeks since its exposure to it. The rest of the family were re-vaccinated, and all escaped. With many thanks for the supply of matter which you have so freely afforded me,

I am, dear Sir,

Yours, very truly,

R. W. PHILPOTT.

Lewes, August 14th, 1841.

Dear Sir,—I am extremely obliged to you for your supply of vaccine virus, which I decidedly prefer to that I was in the habit of formerly procuring from the Old London Establishment.

I have vaccinated between 70 and 80 patients from the virus I have received from you, and have invariably seen perfect pustules produced by it.

I remain, dear Sir,

Yours truly,

GEO. SCRASE.

N.B.—As the above communication was written for you some time since, many other opportunities have occurred for me to notice the superior qualities of your vaccine.

The last supply I had from you, was to vaccinate my own little girl, and it succeeded admirably.

Brighton, September 6th, 1841.

Dear Sir,—I have delayed writing to you respecting my success with the vaccine virus

you were kind enough to give me, until after two or three removes, I could satisfy myself of its genuineness. I now, however, can inform you, that the result of my examination has been such as I could wish ; and I trust it will be long preserved to us, and sincerely hope you will continue to receive that meed of praise which is so deservedly your due.

I remain, dear Sir,

Yours very truly,

T. R. SIMMONDS.

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*Brighton, Oct. 11th, 1841.*

My dear Sir,—I have for many years most anxiously desired to see some individual employ himself in the propagation of a new virus, by inoculating a cow with variolous ichor, believing, as I have always done, that the original source of cow pock was in reality derived from small pox.

In you, Sir, I view one to whom I am, as an individual of the medical profession, highly indebted for having produced a virus, which in numerous applications I have the pleasure



to bear testimony of its most satisfactory results ; and have the honour to be,

My dear Sir,  
Your obliged and obedient servant,  
HENRY SUTTON.

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*London, Brook Street,  
November 26th, 1841.*

My dear Sir,—I beg to thank you for your attention in making me acquainted with the progress of your experiments on the subject of vaccination with your new stock.

I hope you will continue to watch over the growth of your infant progeny ; but I fear, with you, that few will be found to devote the time to the subject which it really requires. In truth, none but those who feel a degree of enthusiasm in the subject will be found to give it the attention it requires. It is thus with almost all discoveries—they are only brought out by men who feel an unusual interest in them, and cultivate the subject with a devotion which few feel. I think, however, that what has been done lately on the subject of vaccination by Mr. Ceely, Mr. Estlin, and

yourself, will do good, and, indeed, has done much good, by calling the attention of the profession to the state of the vaccine virus. The profession and the public in general have, therefore, reason to be grateful to you all for your exertions.

I am, my dear Sir,

Yours, truly,

JAS. CLARK.

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*February 14th, 1842.*

Dear Sir,—I am so much pleased with the success of the small pox matter when taken from the cow, that I should exceedingly like to have more if you can spare any. I have inserted it into the arms of adults, both male and female, in the way you directed, and it has never failed to produce all the appearance of the true vaccine vesicle.

I have not put it into the arms of infants, thinking it would produce, possibly, more violent inflammation in its effects than the simple vaccine; but, as I said before, into the arms of adults. I have also tried Mr. Ceely's, but cannot speak of it at present. If you can

send me more of your variolæ vaccinae, (as I believe you term it,) I shall be much obliged, and glad to make you any remuneration.

I remain, dear Sir,

Very truly yours,

E. H. MAUL.

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46, Old Steine, Brighton,

September 20th, 1842.

My dear Sir,—In an experiment so interesting to medical science, and which I believe has never succeeded in this country but with yourself and one other person, it is of high importance that you should furnish the clearest testimony to the members of the profession. It affords me much pleasure in being able to state that the cow was inoculated with small pox from one of my patients, that I watched the progress of the disease in the animal, also in your own little boy, vaccinated direct from the cow, and the result has, to my mind, satisfactorily established the identity of *variola* and *vaccine*. The vesicles produced by your vaccine are very fine, and perfectly characteristic with those of Dr. Jenner's; and

I quite agree with Mr. Estlin, of Bristol, in the opinion given in his letter to Sir J. Clark, respecting your vaccine,—“That no virus ought to be so much esteemed as that converted by the cow from small pox to the vaccine vesicle.” I am glad to find you are circulating your stock of vaccine lymph widely, and I consider the public is much indebted to you.

I am, dear Sir,

Truly yours,

J. CORDY BURROWS.

P.S.—I observe in the last volume of the transactions of our Medical and Surgical Association, that your vaccine lymph was found to be in admirable perfection after four months. I, therefore, doubt not but that which you sent to our Colonies and to Germany will be found effective.

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*Brighton, September 24th, 1842.*

Dear Sir,—During the time of my being House Surgeon to the Brighthelmston Dispensary, I was induced to make trial of your



vaccine by the recommendation of Sir M. J. Tierney, M.D., one of the Vice Presidents. I vaccinated more than 200 patients at the Institution, and the results were very satisfactory; since which time I have continued to use it in my own practice.

I remain, dear Sir,

Very truly yours,

W. VERRALL.

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Camden Crescent, Dover,

March 14th, 1844.

Sir,—I shall be much obliged by your sending me, as early as convenient, a supply of vaccine lymph, as the season is now favourable for vaccination. The last supply that you sent me, about a year ago, produced very fine vesicles, and I vaccinated in succession nearly 100 patients.

I remain, Sir,

Your obedient servant,

W. SANKEY.

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*Aylesbury, May 12th, 1844.*

My dear Sir,—I beg you will accept my

sincere thanks for your very gratifying communication received this morning, announcing your deserved success in again variolating the cow, and obtaining the vaccine disease, (the vaccine modification of *variola*, as I still presume to call it). I assure you I am fully as much gratified as you can be, at your thus twice more succeeding in this difficult and precarious experiment; and I do say that your unwearied perseverance after so many failures is deserving of unqualified praise, although your former success must have assured you of eventual triumph.

I hope you will carefully note any circumstance that may differ as to time, season, mode of operation, character of constitution of the animal, or its integuments, or any thing in the temporary condition of it; in fact, any circumstance that may have contributed in all probability to the result in these last cases, which may not have existed in former experiments.

I am not inclined to think we are likely soon to arrive at a knowledge of all the circumstances which favour success in this interesting experiment; but for that reason no-

thing is too minute to be recorded in the detail of the particulars attending a successful attempt.

Thank you for the two points you have sent me ; I will soon employ them, and shall be glad to use some of the succeeding removes, when you can spare any that you approve of. Keep it carefully under your own eye at present, and let others see its effects under your operations, except you have careful and experienced, and unprejudiced observers, willing to aid you in the use of it.

Be under no apprehension from the source of the variolous virus having been a *confluent* pustule. Any *opinion* to the contrary will be of no value, for Dr. Basil Thiele, of Kasan, (S. Russia,) has himself settled this point by direct experiments. He says, "the greater or less malignity of the epidemic small pox, and of the individual case from which the matter has been taken, *has no essential* influence upon the *vaccine* generated ; for in a case in which the small pox eruption was confluent, became black, and the child died, a perfectly genuine vaccine was generated by the transmission."

I wish you success in the human transmissions, and when they are fully and completely established, pray draw up the cases, and if you don't publish them, you will be very blameable.

If you do not contemplate the publication yourself, I hope you will allow me to suggest a mode of disposing of them, to which I am sure you cannot object.

I am so desirous to hear of the complete success of your subsequent trials with the generated vaccine, and to see the local effects on the animals, (human and brute,) that I have a great inclination to run down and see you. When think you would be a proper day to see as much as possible in both these respects, for I cannot be away more than two days from home?

I am better certainly than when I left Brighton, and have gone through a most flagging and harassing winter, and spring, without one day's rest; but I should like another five or six weeks' holiday soon at Brighton, but fear I cannot obtain it this year, certainly not till autumn, if then.



With best wishes and many thanks, believe me,

My dear Sir,

Yours, very truly,

ROBERT CEELY.



116, *Marine Parade, Brighton,*

*June 4th, 1844.*

Sir,—The virus which I procured from you, marked *one remove*, was employed to vaccinate a healthy child, aged five months.

Up to the fifth day so little local and general irritation appeared, as to lead to the supposition that the operation had failed; but on the eighth, the pustules were full-sized, charged with limpid lymph, and surrounded by a small areola. On the tenth day, the inflammation had spread nearly down to the elbow, the fever was considerable, and red blotches appeared on the back and lower limbs of the child.

The constitutional symptoms gradually subsided, together with the eruption just described.

The matter taken from one arm was em-

ployed to re-vaccinate six persons of different ages ; in three, aged 7, 11, and 16, it succeeded. In these cases the inflammation began early, subsided after the eighth day, and did not reach any great height.

Should this statement be of use to you, pray employ it as you think proper.

With every desire to see you duly recompensed for your exertions in this matter,

I am, Sir,

Your obedient servant,

CHARLES MAITLAND, M.D.

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*Dover, March 15th.*

Sir,—The very scanty supply, three points, were all used on a healthy child, and three fine vesicles produced, when to my astonishment and annoyance, the lady refused to have any virus taken from the child's arm ; under these circumstances you will, I hope, send me more. I enclose a statement of the result of the last two or three years' vaccinations ; all the difference I have observed, is in the larger size of vesicles.

Yours, very faithfully,

W. SANKEY.

During 1843, fifty-seven patients were vaccinated from vaccine obtained from points of Mr. Badcock, of Brighton; of these, four were instances of re-vaccination, fifty-three of vaccination for the first time. In forty-seven of the fifty-three, four vesicles (corresponding to the number of punctures made) were formed. In three, (the first three vaccinated) it was noted that the vesicles were very fine; one, that they were small (the fourth vaccinated.) In another instance, vaccination from the points first obtained, had failed, and the four vesicles resulting from the second vaccination were destroyed by scratching. In the forty-two remaining cases, the vesicles formed were considered efficient, but there is no note of any peculiarity.

In three instances, three vesicles only were formed. In two instances there were only two vesicles. In another instance, only one vesicle.

In 47—4 vesicles.

“ 3—3 vesicles.

“ 2—2 vesicles.

“ 1—1 vesicle.

Two separate supplies in 1844, obtained from same sources, failed.

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1845. Eighty-four cases from ichor from Brighton. Seventy-eight, first vaccination. Six, re-vaccination. Of seventy-eight :—

In 71—4 vesicles formed.

“ 2—1 vesicle.

“ 2—2 vesicles.

“ 3—3 vesicles.

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In the instances where two vesicles formed, the vaccine matter was compared with other ichor by the two sorts being introduced into different arms of the same patient by two punctures. There was not any difference perceived in the two sets of vesicles.

Not a single case of small pox has occurred to test the protective power of the lymph ; but upwards of twenty years since, patients under vaccination have been placed in contact with small pox and have not been infected.

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*Aylesbury, April 3rd, 1845.*

My dear Sir,—I must beg pardon for



not acknowledging the receipt, and long ago returning the memoranda which you kindly sent me ; but, really, I have been so harassed by a continued series of urgent duties, that I have not been able to pay them that careful attention which I wish to do before I send them back. Your lymph has been extensively used in the neighbourhood from the last supply, vaccination having been practised in all directions, from the appearance of small pox. Many hundreds have been vaccinated and re-vaccinated with it, and I have heard my own opinion of its perfect efficiency confirmed, with much satisfaction, by those to whom I have distributed it. I have watched the operation of both stocks in many cases of my own patients, and have been perfectly satisfied with its effects in every particular ; I really could not see any difference between the two stocks, on the same subjects, so I soon blended them.

I have been obliged to suspend my vaccination lately, from the occurrence of scarlatina and other impediments, and having used all my most recent points in some unproductive re-vaccinations, I have been unable to supply six

for not before thanking you for your very interesting, satisfactory, and obliging letter. It contains particulars which I should have regretted not to have possessed, and I shall have a special pleasure in communicating them and the whole of the matter relating to the subject, so as to ensure you the high credit you so richly deserve.

I was much pleased to find you related to Mr. Alsop, for it was the anecdote which I related in the note, and which I heard soon after coming into this place, that first gave me the desire to ascertain by direct experiment the truth of what really appeared to me so very doubtful. I have never yet had any satisfactory information beyond that detailed, to enable me to judge whether Mr. A. *vaccinated* or *variolated* the cows.

The only circumstance that confirmed my scepticism was a very natural one. The man's detail was certainly striking, he had no end to serve, no theory to support : but how came it that Mr. A. (*who I am told was intimately acquainted with Jenner,*) had not furnished the latter with so satisfactory and direct a proof of his theory? Did you ever

hear Mr. A. speak of the fact I related? What think you of the incident? I am glad to hear that you have again succeeded; on what part of the animal this time? I wish very much to try on a large scale, the process recommended for variolating the cow by Dr. Basil Thiele. I fancy it may be done with not more ultimate expense than a series of uncertain operations in the ordinary way.

I now send you some new vaccine lymph on points charged from a milker's hand, late in May last, from the first and second remove from him, and consequently the last time, the third from the cow.

You may be able and perhaps desirous to compare its effects locally and constitutionally with your own lymph, on the same and on different subjects, preparatory to testing the latter with small pox, through the instrumentality of your friends, as I have done with mine. In the enclosed lymph, I see nothing unusually severe except on very thin skins; although the milker's hand exhibits now rough ulcers, one on the hand deep enough to encase a bean. I have been requested to supply (of course gratuitously) variola vaccine

applicants for it; one of them is Mr. J. G. Crosse, Surgeon, of Norwich, where, already, more than 200 deaths have occurred from small pox. He wants the enclosed points charged from the latest lymph from the cow. Could you conveniently do so for him? and could you spare me a few points also for other applicants? If you have not many to spare, I must use what you can spare, and again get a supply; for small pox has just occurred here, and I have some patients already requiring vaccination.

I return you your own points. A case of small pox has, I learn, just appeared here; if it be a natural and not a modified case, I will collect you some virus.

Believe me,

My dear Sir,

Yours, truly,

ROBT. CEELY.

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*Aylesbury, June, 29th, 1845.*

Dear Sir,—I have lately had an opportunity of testing with variolous infection, two chil-



dren vaccinated with your last lymph, and have found them perfectly safe.

In almost every case in which I have used the last supplies, the patients have exhibited the primary constitutional symptoms on the 6th or 7th day, abundance of areola on the 10th day, and a full and satisfactory amount of the secondary fever; and have shown as fine vesicles as I ever wish to see. I intend to continue it.

A large number of patients now in the vale of Aylesbury, therefore, have had to rejoice in your lymph; besides some hundreds in various other parts of the kingdom.

I am sorry that I must, for want of time, defer writing a longer letter; I trouble you now, because I thought you might have referred Mrs. W. to me, as she applied from Brighton.

Believe me, dear Sir,

Yours, truly,

ROBT. CEELY.



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